BOX-8 ®

Webserver and onboard SCADA
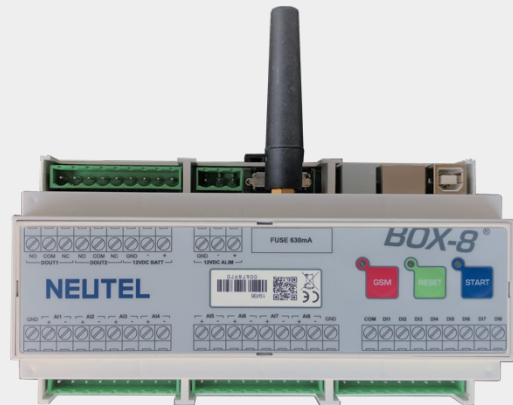
Data storage on SD card

GSM/GPRS (3G-4G-LTE) and Ethernet 100BASE/-T

Backup battery

BOX-8: UNIVERSAL TELEMETRY MONITORING AND CONTROL DEVICE

The BOX unit records and controls analog electrical (AC/DC) quantities.
It is designed to be installed on a DIN rail and powered at 12VDC.It may be powered by solar panels or from the grid, using the included power adaptor and backup battery.
BOX relays data to the remote datacenter over GSM/GPRS – 3G/4G/LTE or Ethernet or to a local server using RS485. With a web interface, local SCADA and SD data storage it is a unique instrument in its field

GENERAL DESCRIPTION

The BOX-8 unit offers eight high precision analog inputs, for voltages in the ranges of ±100V and ±20V, to measure continuous or alternating values with true-RMS techniques. Designed to be mounted on a DIN rail (8 units), it provides slot-in screw terminal connectors to test points that simplify installation and maintenance operations.
A backup battery is included.
Three push-buttons on the top provide access to basic setup and diagnostic operations.
Data is stored internally on Flash memory and SD Card. Operators access the data through the onboard webserver, using a standard browser, or configure the unit to relay the data to a remote datacenter over different physical media (cell network or Ethernet/LAN).

BOX-8 contains SCADA functionality that can be accessed via the browser. It can operate as a MODBUS server over RS485. 8 virtual channels can record electrical measurements for example from Transformer Rectifiers that implement the MODBUS protocol over RS485. It is possible also to control and configure Cathodic Protection T/Rs over this communication interface. The unit can be configured in an "Always-on" mode, to listen continuously for commands from the data center to the T/Rs, or to download logs at the specific request of an operator.

APPLICATIONS AND BENEFITS

This versatile unit can cover many different roles, from simple data-logging, to more sophisticated applications with remote control and configuration of multiple units.

It may also be used for remote monitoring of physical quantities in transport, distribution, stocking and flow-lines of Water, Oil and Gas. In particular it has been designed with specialized functions to monitor and control Cathodic Protection Transformer Rectifiers that provide an RS485 communication port.

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DATASHEET

ANALOG INPUTS

Channels and type	8 AC+DC (Galvanically isolated)
Measurement range	(4x) +/-100V; (4x) +/-20V
Resolution for each range	< 0.05% FS (24 bit – 1ms converter)
Input impedance	> 10Mohm (20V scale)
Optional dedicated functions	OFF potential measurement, 4-20mA inputs on request
Integrated linearization thermometer	-40°C to +85°C 0.5°C resolution

CHANNELS

Number of analog channels	8
Number of virtual MODBUS channels	8
Number of logical channels for voltage and current channels from APC compatible T/Rs	8
Digital Outputs	2
Analog Outputs	2 (0-10V)

COMMUNICATION INTERFACES

Local cabled interface	Ethernet 100BASE-T
Service Port	USB 2.0
Connection to datacenter	GSM/GPRS 2G/3G/4G or LAN/Ethernet

SAMPLING, RECORDING AND TRANSMISSION

Sampling interval	From 1 sec upwards
Recording interval	From 1 sec upwards
Transmission interval	From 15 minutes upwards
Sample records	Continuous, Statistic
Measurement reports	Daily, Continuous, Statistic, Depolarisation
Daily report storage capacity	1 year or greater (device lifetime on SD card)
Continuous report storage capacity	1 month or greater (device lifetime on SD card)

SPECIAL FUNCTIONS

MODBUS	Server for local RS485 bus
Always on	Real-time communication over data network

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Power supply	12V DC 1A. With power adapter: 230V AC, 5kV DC
Certifications	2014/30/UE (EMC), 2011/65/UE (RoHS)
IP rating	IP20 – IP56 with included plastic box
Size	160x90x60mm (8 mod DIN) 300x220x130mm (With complete enclosure for batteries and power supply)
Standard operating temperature	-10°C to +70°C (extended range -40°C to +85°C)
Weight	200g (8 mod DIN) 3kg (With complete enclosure for batteries and power supply)
Relative humidity	10 to 95%

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Neutel Srl – Corso Giacomo Brodolini 19 – 27029 Vigevano PV – ITALY

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